



Roy F. Weston, Inc.
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE. 3 December 1998

TO. David Bennett, WAM, U.S EPA, Region X

FROM: Michelle Turner, Chemist, WESTON, Seattle
Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT Validation of Total Organic Carbon Analysis Results
Laboratory Batch K9805624
Site Duwamish River

WORK ASSIGNMENT NO.: 46-23-0JZZ

WORK ORDER NO.: 4000-019-038-5200-00

DOC. CONTROL NO.: 4000-019-038-AAAK

cc. Bruce Woods, RAP-WAM, U.S EPA, Region X
Dena Hughes, Site Manager, WESTON, Seattle (memo only)
Kevin Mundell-Jackson, Database Management, WESTON

The quality assurance review of seven sediment samples, laboratory batch K9805624, collected from the Duwamish River has been completed. The sediment samples were analyzed for total organic carbon (TOC) using EPA Method 9060 by Columbia Analytical Services of Kelso, WA. The samples were numbered.

98344050	98344051	98344052	98344053	98344054
98344055	98344056			

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control specifications described in the technical specifications of the laboratory subcontract

This document was prepared by Roy F. Weston, Inc. expressly for the EPA. It shall not be disclosed in whole or in part without the express, written permission of the EPA.





QA Batch K9805624 (Total Organic Carbon)

Site Duwamish River

Page 2

1 Holding Times

All samples were cooled with ice or refrigerated from the time of collection until analysis. A maximum holding time of 14 days was specified in the Duwamish River Sampling and Analysis Plan. All TOC analyses were performed within 13 days of sample collection.

2. Instrument Detection Limits

All laboratory detection limits are equal to or less than the project-required detection limits of 200 mg/kg.

3 Initial Calibration

A calibration verification check was analyzed prior to sample analysis. Results met control limits of 90 to 110 percent recovery of the true value.

4. Continuing Calibration Verification

Continuing calibration checks were performed initially and after every 10 samples. Results for all continuing calibration checks met control limits of 90 to 110 percent recovery of the true value.

5. Laboratory Method Blanks

Laboratory method blanks were prepared and analyzed with each batch of samples. TOC was detected in laboratory method blanks at a concentration of 0.006 percent or 60 mg/Kg. As all sample concentrations were greater than five times the blank concentration, no qualifiers were assigned based on method blank results.

6. Laboratory Control Sample

The recoveries for TOC were within the control limits of 80 to 120 percent.

7. Laboratory Duplicate Sample Analysis

The percent relative percent difference (RPD) between replicate analytical results was within the QC limit of 35 percent.



QA Batch K9805624 (Total Organic Carbon)

Site: Duwamish River

Page 3

8 Matrix Spike Analysis

Matrix spike recoveries for all analytes met QC criteria of 70 to 130 percent.

9. Field Duplicate Analysis

Samples 98344055 and 98344056 were "blind" field duplicate samples. The relative percent difference between duplicate results was within project limits of less than 35%.

10. Sample Analysis

A cursory review of raw data was performed. No problems were noted. Triplicate analyses were not performed for this SDG.

11. Laboratory Contact

No laboratory contract was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values

Data Qualifiers

- U - The material was analyzed for, but was not detected.
- UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.
- J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard.
- R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

This document was prepared by Roy F. Weston, Inc. expressly for the EPA. It shall not be disclosed in whole or in part without the express, written permission of the EPA.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Roy F Weston, Inc
Project: Duwamish River/4000-027-001-2019-38
Sample Matrix: Sediment

Service Request: K9805624
Date Collected: 8/19/98
Date Received: 8/20/98

Carbon, Total Organic

Prep Method NONE
Analysis Method 9060M
Test Notes

Units PERCENT
Basis Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
983344050	K9805624-001	0.05	0.006	1	NA	9/1/98	2.64	
983344051	K9805624-002	0.05	0.006	1	NA	9/1/98	2.67	
983344052	K9805624-003	0.05	0.006	1	NA	9/1/98	2.33	
983344053	K9805624-004	0.05	0.006	1	NA	9/1/98	2.50	
983344054	K9805624-005	0.05	0.006	1	NA	9/1/98	2.43	
983344055	K9805624-006	0.05	0.006	1	NA	9/1/98	2.20	
983344056	K9805624-007	0.05	0.006	1	NA	9/1/98	2.26	
Method Blank	K9805624-MB	0.05	0.006	1	NA	9/1/98	0.006	J

M

Modified

Approved By



Date

9/3/98

1A/020597p

05624WETLJ1 Sample 9/3/98

00005

7/21/21/98